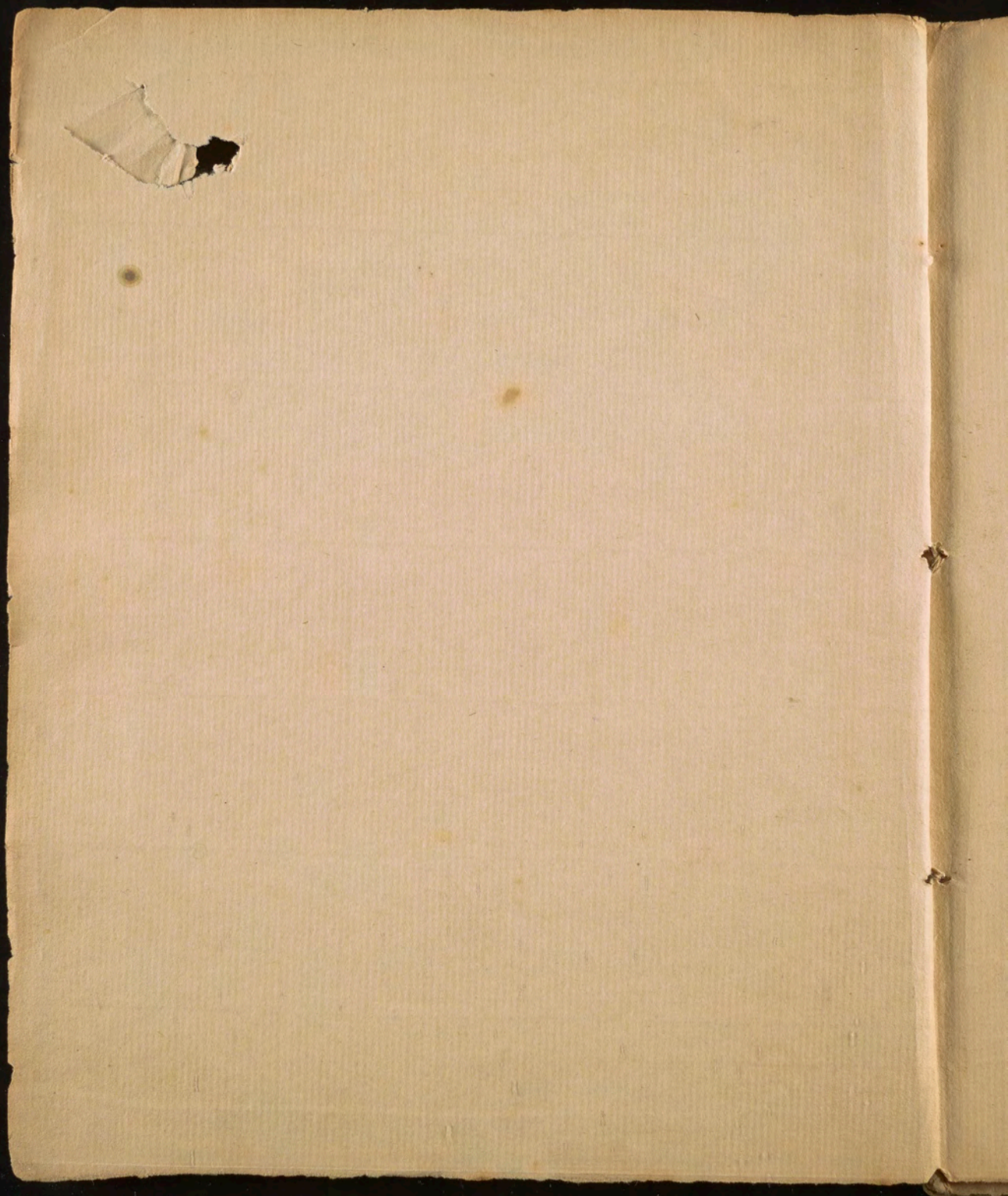


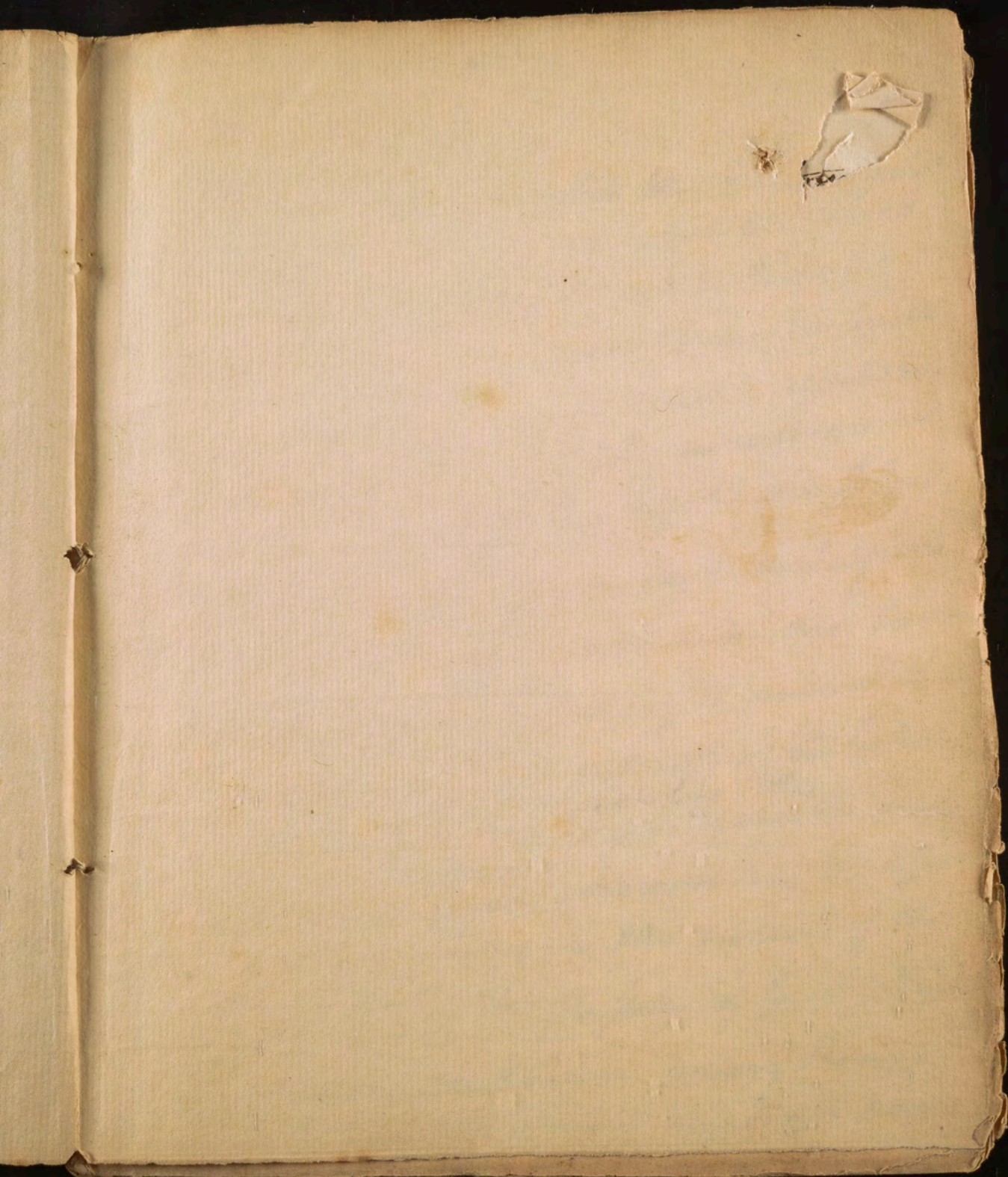
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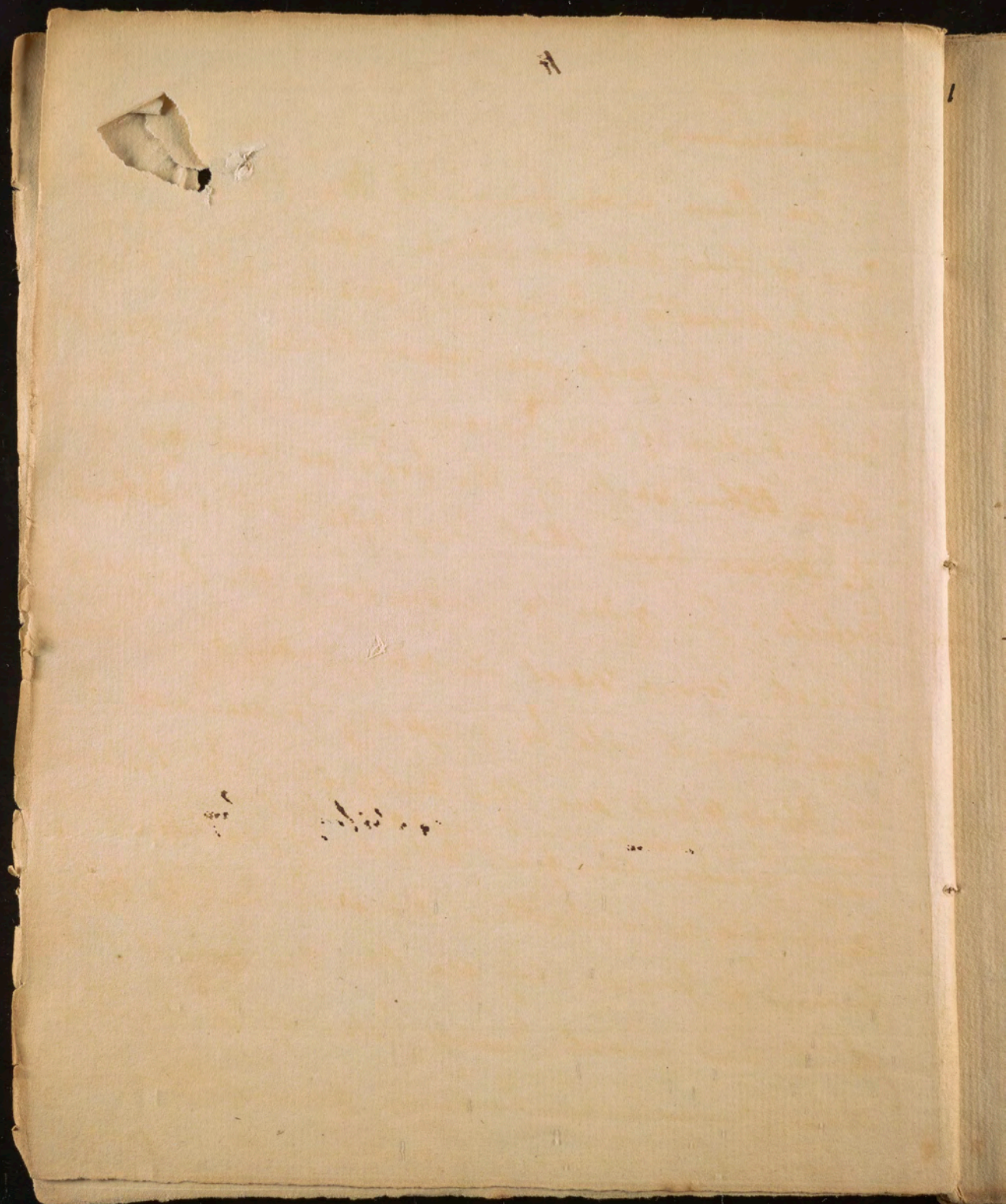
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Introduction to lectures upon
Apoplexy, palsy, Coma & Epilepsy.
Feb: 15. 1811.

D. Benj. Rush







Gentlemen,

We have now finished the history and
Cure of those diseases which affect the blood
directly, or which make their first
and chief impressions upon them. We next
took notice of the diseases which affect cer-
tain other parts of the body ~~as well as~~ at
the same time that they affected the blood.
-vessels. In order to understand the subjects
which come next in order under our Consi-
-deration, it will be necessary to remark that
the blood vessels are the outposts of the system.
Given this ^{preeminent} ^{irritability,} they
receive the first attacks of morbid im-
-pressions which they discover in the different
forms of fever. They are the diseases of the
first and most simple states of society. Few
other diseases are known among savages.
From the increase of morbid impressions from

This is the common
 see his of a pair of of 4
 from highest grade of
 Apoplexy, but I shall
 say hereafter there are
 cases of it in which there
 is at an absence of pulse,
 and of Respiration and of work
 of 2 hours of life.

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 16. 25.

Prognosis and

3. 15.
 12. 14. 19. 22. 23. 27.
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 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30.

✓ The same remote Causes which induce fever
in a labourer, or a farmer, or in a young
man or Woman induce ~~fever~~ ~~that is a fever~~
~~Dyspepsia,~~ Colic, head stomach - or head ache -
or some other ~~remote~~ Disease of the more
connected with the nervous system in a wealthy
& ^{luxurious} Citizens, or in persons advanced in life.
But these nervous Diseases =

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the luxuries of civilized life, diseases spread to
 other systems, particularly to the nerves, muscles,
 brain and mind. After a while the blood ^{repels} loses
 their irritability to morbid impressions, or in other
 words acquire so much of the stricture state, that
 diseases pass by them altogether, or nearly so, and
 fix themselves exclusively in the nerves, muscles
 and brain. The diseases which occupy these sys-
 -tems usually make their appearance in the
 the advanced, or highly civilized state of society;
 - hence in the ^{modern} bills of mortality, ~~from~~ of London
~~from~~ which in the time of Tydenham ~~showed~~
 two thirds of all who died, are now hardly noticed
 as the instruments of death in that city. By this
 translocation of diseases from the blood repels to
 the other systems of the body, death is kept at
 bay for a longer time than when ~~from~~ were
 the principal outlets of human life. ~~but~~ ^{for the}
 human misery is thereby increased, and

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Diseases which ~~occupy~~ occupy the place of fevers
~~are more the life suddenly mortal~~ are more
 distressing than the fevers they have banished,
 and tho' life suddenly fatal, they are ^{finally} equally so.
 In short they substitute Chronic diseases to
 such as are of a short duration - painful
 and diseases to such as often destroy sensibi-
 -lity, and ^{paroxysms of} ~~a~~ lingering death to ^{the sudden} ~~that which~~
 extinction of life. It was from this view
 of the immense difference between natural
 diseases such as fevers, and the diseases of
 civilized, or artificial life, that a physician
 once said, "God ^{made} ~~that~~ acute diseases, but man
 made all such of them as were of a Chronic
 or artificial nature." -

Our business at present is to treat of those
 diseases which affect the Great Vessels in
 common with the bloodvessels, and here I

V However strange and paradoxical this
Assertion may sound, I believe it to be true, &
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shall depart a little from our syllabus by treating of Apoplexy, palsy, Coma, Convulsions, or Epilepsy in the order in which I have now mentioned them. I shall begin my remarks upon all these diseases by taking notice ~~in the~~ ^{or} ~~of the~~ ^{fact} that they are all different grades of but ~~one disease.~~ ^{Apoplexy constitutes the highest grade} ~~however I range this essay round, I shall~~ ^{upon the scale. Coma the lowest} ~~I shall~~ endeavour to support this ~~assertion~~ ^{it} by the following facts and arguments.

- 1 ~~All these diseases~~ ^{They} are all induced by a greater or less force of the same direct, indirect & Sympathetic Causes, to be mentioned hereafter.
- 2 They all affect the same Systems; these are the blood vessels, the brain, the mind, the muscles, and the nerves.
- 3 ~~They are~~ Several of them are sometimes combined with each other. Thus we ^{see} Apoplexy & Convulsions at the same time, particularly in Drunkards. Again we see them terminate in each other.

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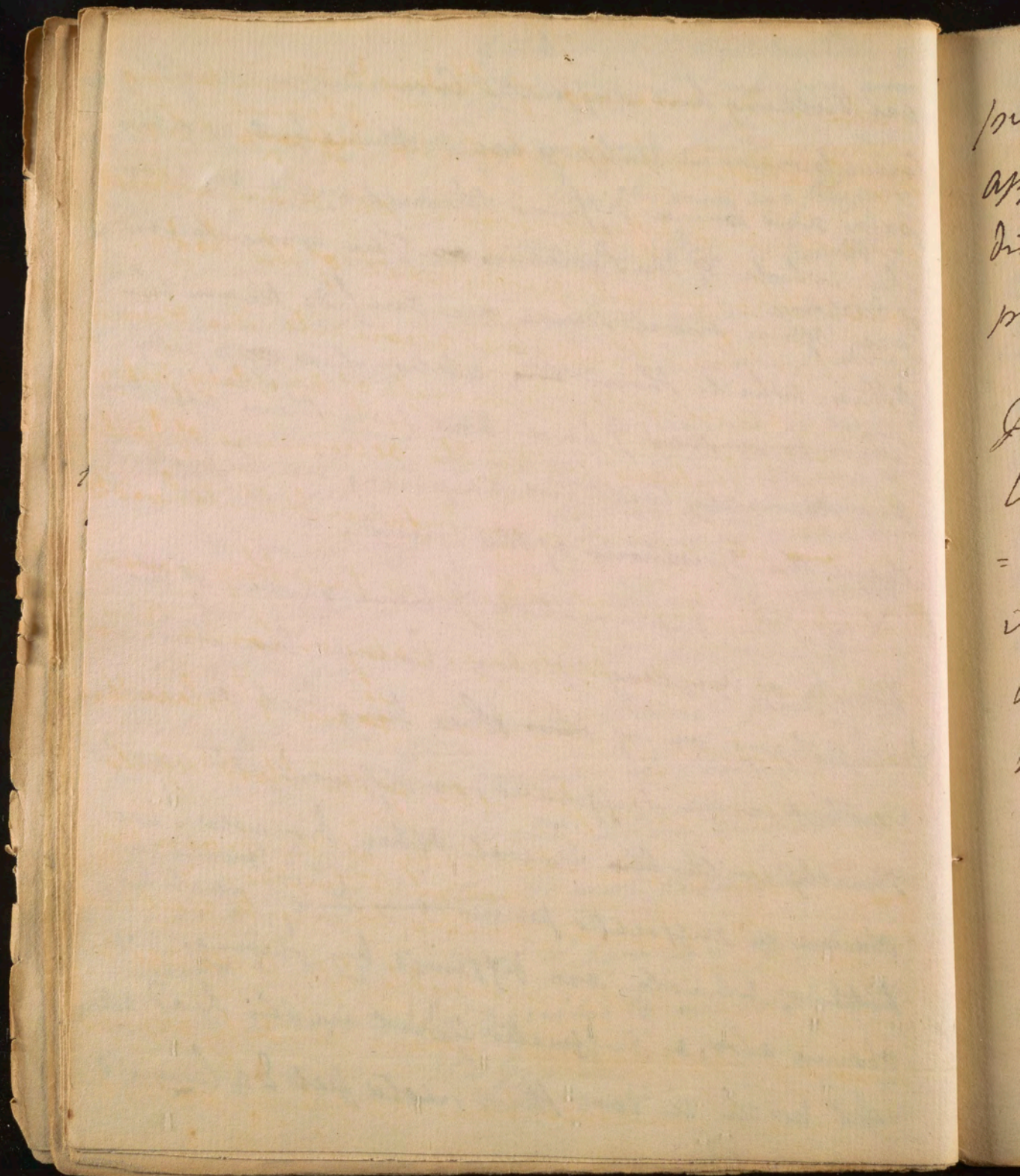
Thus Epilepsy succeeds Apoplexy, and Apoplexy is frequently the last and deadly paroxysm of Epilepsy. Indeed Epilepsy seldom ends fatally in any other way. Further, Apoplexy often succeeds palsy and palsy Apoplexy. But this is not all, ^{Some of them} ~~they sometimes~~ alternate with each other. Thus we see Apoplexy and Epilepsy affect the same person two or three times in the course of a few years.

I infer the sameness of all the Diseases I have mentioned, and that they differ from each other only in force, from the same morbid appearance occurring in the brain after death from each of them. Of the truth of this assertion you will find many proofs in the Works of Morgagni, Linnæus, and other writers upon morbid Anatomy. This fact ~~is not~~ ^{is} not originally mine. It was first discovered by Dr Thomas Willis. In short, Apoplexy, palsy & Coma

V of the sameness ^{of the cause & and nature of} of Apoplexy & Epilepsy in
~~this case~~. "Starting in our sleep" is a
striking illustration. The brain in sleep is
in what I formerly called a state of "healthy
Apoplexy," that is somewhat oppressed with
blood. When this Oppression comes on suddenly
or in greater force than is common or natural,
the brain reacts, in consequence of which
we awake with a starting, or in other words
with a convulsion. This ^{reaction of the brain in} starting or convulsion
changes what would be a Coma or Apoplexy
into a single or transient epileptic fit.
That this is the case, is obvious from the
the snoring which ^{often} precedes it, or which
occurs during the night where ^{the} reaction of
the brain and starting do not take place. Now
snoring is a symptom of Coma & Apoplexy,
and is uniformly ascribed to a morbid
pressure upon the brain.

are nothing but suffocated Convulsions, and
 Convulsions, or Epilepsy are nothing but apoplexy,
 palsy and Coma diffused throughout a part, or
 the whole of the System. ~~as~~ The Convulsions
 of Epilepsy are often more severe on one side than the
 other, which shows ~~the~~ ^{its} relationship ~~to~~ palsy.
~~This is so that~~ I have once seen them affect
 one side only without impairing in the smallest
 degree the Operations of the mind.

✓ The Explanation I have given of the
 Unity of Apoplexy, palsy, Coma, Convulsions
 & Epilepsy, or of ~~this~~ ^{their} being but one disease
 existing in a suffocated, or diffused state accords
 strictly with the several other diseases. We
 observe a suffocated pneumonia & ^{suffocated} pleuritis,
 both of which are diffused by bleeding. We
 observe also a suffocated gout in the head, atten-
 ded with a cool skin, cold feet & a languid



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pulse. By means of bleeding & stimulating
applications to the feet, we ^{abstract} ~~diffuse~~ the
disease, and diffuse warmth & an active
pulse throughout every part of the body.

But how shall we reconcile the opinion
I have given of the sameness of Apoplexy, palsy,
Coma & Epilepsy with the occurrence of Epilep-
sy ^{or} ~~and~~ convulsions in Infancy & Childhood
in which stages of life, it is said they never
alternate with Apoplexy, palsy or Coma? To
this question I answer ~~in~~ ^{in 1st place that}
that the greater strength of the blood vessels
and the greater elasticity of the brain in
infancy & Childhood ^(in proportion to their size) enables them to react with
more force than in middle life & old age &
~~thus~~ by that means, where unduly oppressed,
to save themselves from Apoplexy, palsy &

8
Coma, by ~~creating~~ creating Convulsions &
Epilepsy, and hence the frequency & origin
of those diseases in ~~the~~ ^{the} early periods of life.
~~But~~ I took notice of the greater strength of the
blood vessels in children than in grown people
formerly, and accounted ~~for~~ ^{from} it for the greater
determination of the blood to the head in the
first years, than in any subsequent years of
human life. But ~~common~~ great as the relative
strength of the blood vessels of the brain, and
prompt as its reaction is from its greater
relative elasticity, it is not always able to
~~prevent~~ ^{prevent} apoplexy, palsy & Coma by
~~creating~~ ^{inducing} inducing convulsions, or Epi-
-lepsy, and hence I ~~reply~~ ^{reply} to our questions
2^d that apoplexy, Coma ~~and occasionally palsy~~
are more common in the infancy, and
childhood, than in middle life or in old age.

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I a ~~double~~ ^{the deep sleep} ~~apoplexy~~ ^{which}
This is evident 1. from ~~the deep sleep~~ ^{now} ~~the deep sleep~~ ^{which}
in children ~~in all cases~~ ^{for} this sleep which
Epilepsy in all cases; ~~for~~ this sleep which
~~uniforably follows a fit of Epilepsy is no-~~
~~thing else but a febrile sleep~~ ^{now} ~~now~~ ^{which} ~~now~~ ^{which}
a low degree of Apoplexy. and 2. from
Apoplexy so generally terminating the acute
diseases of Children. This is most obvious
in the exanthematic fevers, ~~and in the fevers~~ ^{and in the fevers}
~~but it occurs likewise~~ ^{but it occurs likewise}
~~from Contusions on the head, but~~ ^{from} ~~it occurs likewise~~ ^{from}
measles, Hooping Cough, ~~and the small pox~~ ^{and the small pox}
Infantum. This Apoplexy ~~is~~ ^{differs from} ~~is~~ ^{is}
the Apoplexy of Adults in being of a more
chronic nature, but its causes are exactly
the same, and the same results appear in
the brain after death. It occurs in the close
of the ~~above~~ ^{above} diseases now and then.

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After Convulsions, but it often takes place
without them, ^{from causes to be mentioned} ~~from the exhausted state of~~
~~presently.~~

~~the ^{from} the excitability of the blood vessels~~
~~and elasticity of the brain.~~ From these facts

~~we are~~ ~~warranted in believing that Apoplexy is~~

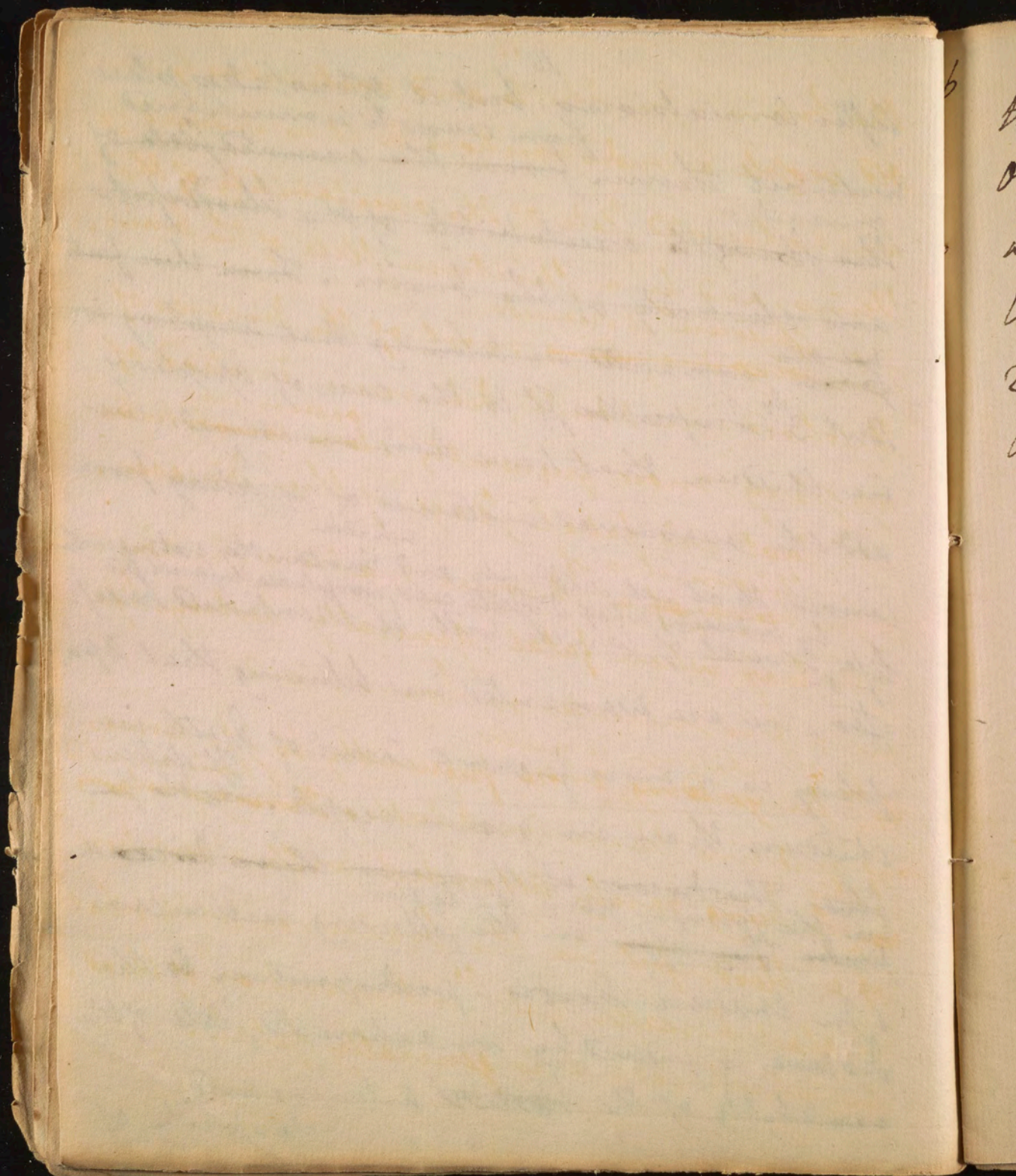
But 3rd ~~disproves~~ ^{it} ~~the~~ ^{to the cases of Apoplexy}
in Children that have been mentioned, we
add the occasional instances of ~~Apoplexy~~ ^{it} from

causes that act suddenly and instantly ^{which} ~~extinguish~~
life ^{by inducing what Dr. Stoll calls Apoplexia infantilis}
Several of which will be mentioned hereafter.

Therefore, we are warranted in believing that Apo-
plexy is a more frequent cause of Death in

Children than in grown people. ~~It differs~~ ^{It differs}
~~from the disease of the former than does a~~
~~from the former, from the latter~~
~~from the latter in the following particulars.~~

1. In Children ~~there is~~ a predisposition to the
disease is induced by an exhausted state of the
excitability of the ~~arteries~~ ^{arteries}, and
elasticity of



the brain. In Adults and particularly in old people a predisposition to it is induced by an exhausted state of the excitability of the

Veins, and by a stricture state of the brain.

2 In ^{children it succeeds} ~~being~~ ⁱⁿ ~~succeeding~~ most of the diseases of

Childhood. In Adults, delirium instead of apoplexy, more frequently ^{occurs in} ~~also constitutes~~

the last and fatal stage of their diseases.

3 In ^{children it is of} ~~being~~ ^a ~~stage~~ ^{chronic} nature. In Adults

apoplexy when fatal, generally destroys life in a few minutes or hours. and

4 In ^{children it yields} ~~yielding~~ more frequently to the power

of medicine than in Adults. ^{I have ascribed} ~~being probably~~

to its being rarely attended with a rupture of a blood vessel in the brain, or with what

I shall hereafter call "intravascular" of blood. in which case it is generally fatal.

~~But proud to remark further, that~~
 Having I hope established the fact that
 Convulsions are nothing but Apoplexy attended
 with reaction, I proud to remark that Con-
 -vulsions of all kinds are transient, that is
 they ~~are~~ occur once or twice, and never afterwards,
 or they are periodical. In this respect you
 perceive their Affinity to fevers, which occur in
 in a single paroxysm, or in two or more pa-
 -roxysms, and never occur afterwards, or which
 occur periodically in the forms of quotidianas,
 tertianas, or Quartanas ~~for~~ which continue
 when left to themselves thro' a whole season,
 or for several years, or during a whole life.
 Convulsions from teething, or from the
 small pox may be considered as a simple
 Attack of an ephemeral fever, or as a

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fever of one paroxysm, while Epilepsy may
 be considered as an obstinate intermittent
 deeply seated in the Constitution, & liable to
 be excited by as many causes as those
 which excite paroxysms & relapses of inter-
 mitting fever. Nor does the resemblance of
 the two diseases stop here. An intermittent
 was formerly as much an incurable disease
 as the Epilepsy, and would probably have re-
 mained so till this day, had it not been
 for the discovery of the Peruvian Bark. It is
 true it destroys life somewhat sooner than
 the Epilepsy from its disorganizing effects
 upon the liver and other Viscera. The brain
 in this case yields more slowly to decay &
 disorganization than the Viscera of the
 Abdomen from repeated attacks, ~~of~~
 and the

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the long duration of Epilepsy. The reason of this must be obvious to you. The viscera possess but a feeble power of reaction compared with the brain, & hence the Epilepsy often continues for 20, 30, & even 40 years without inducing any change in the organization of the brain, or even in the functions, or operations of the mind. That the reaction of the brain saves it from destruction, I infer from the effects of Apoplexy upon it in which no reaction takes place. A single fit of often leaves ~~behind~~ behind it dis-
-cuses of the eyes, or ears, or obstinate head-
-ach, or a defect of memory, and a third fit
often destroys life, by the complete disorgani-
-zation of the brain.

~~It has~~ I have what has been ^{said of} ~~the~~ the Affinity of Apoplexy & Epilepsy.

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we may explain several facts that occur in those diseases.

It has often been ^{that} observed ^{that} convulsions
~~1 have often been observed~~ in the beginning of a fever, ^{are} seldom attended
 with any danger. The reason of this is
 obvious. The brain in the beginning of a
 fever is too strong to be disorganized by
 them. It has been observed further, that
 convulsions in the close of fever, and of
 many other diseases are generally fatal. The
 reason of this is likewise obvious. The ex-
 -ibility of the blood vessels and the elasticity of the
 brain are ^{so completely} exhausted ~~so~~ as to prevent their
 reacting upon the ~~in disease and hence~~ ^{and reacting}
 reversing this tone, and hence they suc-
 -cumb or sink under the so as to produce
 by reacting, an equilibrium in the
 system, &c

✓ are epileptic - in their close - they
are apoplectic. -

hence they succumb, or sink ^{by} ~~into~~ a fatal
 apoplexy, from their being too weak to save
 themselves by a single fit, or by successive
 fits of ~~Epi~~ convulsions or in other words of
 Epilepsy. ^{In a word,} The convulsions in the beginning of V

2 It is a remark as ancient as Hippocrates,
 that a fever succeeding Apoplexy is favourable.

- Why is it so? - I answer because it
 shows, ^{the brain to be so greatly impaired as to be} ~~reaction in the brain~~ ^{that the brain}

~~of the blood vessels~~ able to react thro' the me-

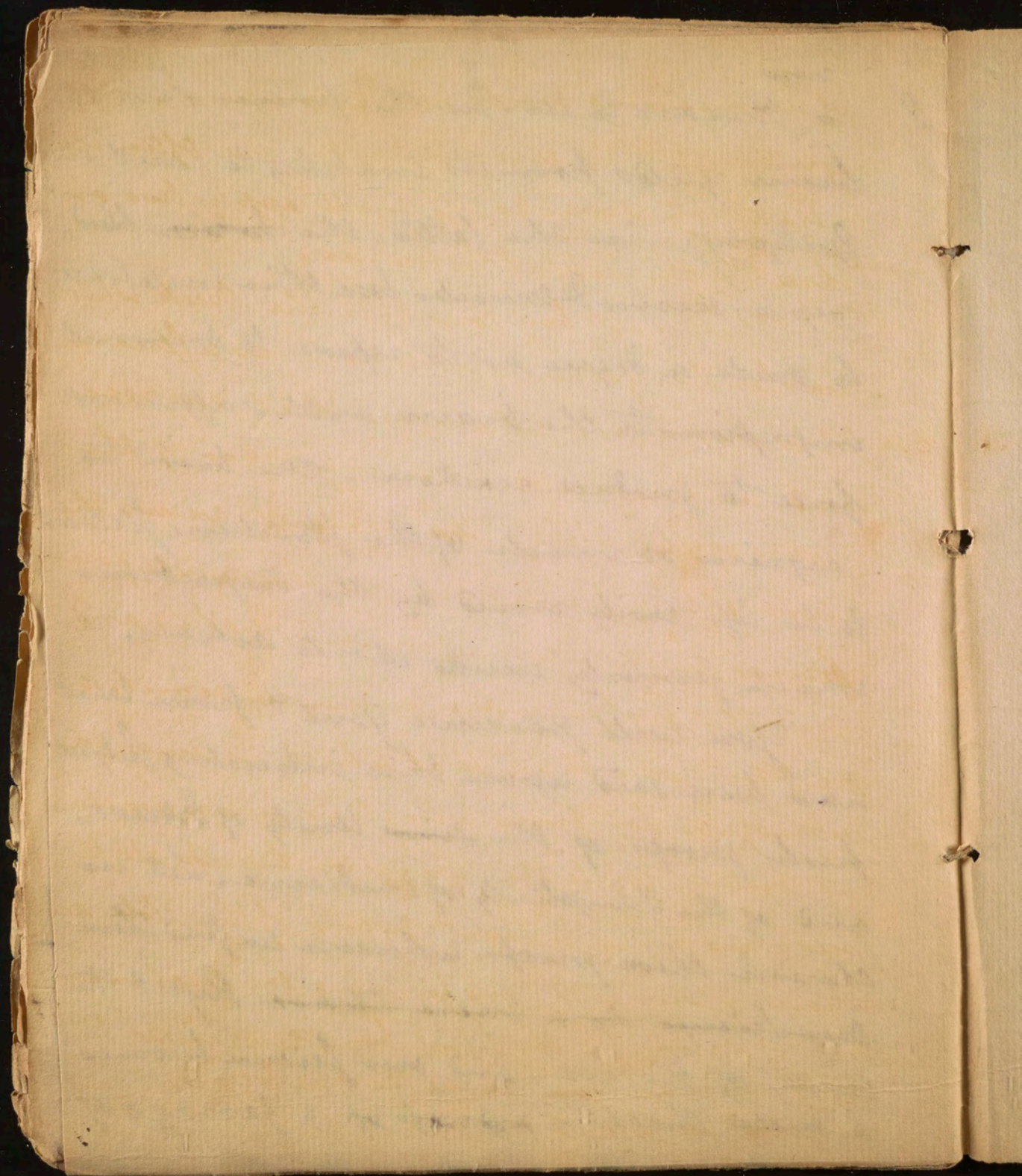
-dium of the blood vessels of the whole system.

- It is equally a sign that the brain has
 escaped disorganisation when it reacts by
 means of convulsions or Epilepsy.

3 It has been remarked that Epilepsy usually
 terminates in death by a fit of Apoplexy, ^{or} ~~and~~
 that it goes off gradually between the 50th
 and 60th years of life. The reason of this

9 ^{now} is ¹⁷ Obvious to us. In the former case the
brain yields from its inability to react in
Epilepsy; - in the latter, the ~~brain~~ blood-
vessels, nerves & muscles lose their irritability
to such a degree as to refuse to transmit
impressions to the brain with sufficient
force to produce reaction. The brain too
acquires so much of the Strichm state as
to be less easily moved by the impressions
which formerly excited it into action.

You will perceive Gent^l from what
has been said upon this interesting subject,
fresh proofs of the ~~simplicity~~ Unity of Disease,
and of the simplicity of medicine. Let us
cherish these proofs wherever we find them.
~~Our Science is a mere Chaos~~ Reject the
Unity of Disease, and our Science becomes
a mere Chaos, - ~~a mass of~~ a jarrago of



of unmeaning words, and a compound of ignorance. As error & truth are often illustrated by similes, I shall apply two or three to the subject before us.

The School boy considers the Creek which washes his father's plantation, as a stream of water made wholly for that purpose, and unconnected with any other of the waters of the globe. ^A peasant views the river ebbing & flowing twice in the twenty four hours in the same contracted light, and even the fisherman frequently admits of no other Ocean than that which receives the waters of the bay from which he derives his clams and oysters; while the navigator beholds all the creeks and rivers & bays & Oceans of the globe as intimately connected, and forming one great integral mass of water. In the School boy, the peasant & the fisherman ^{we} behold the zoologists! In the navigator, we behold the Unitarian in medicine.

